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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,595	12/03/2003	Jae-Jin Lyu	21C-0334	4849
23413 7590 06/26/2008 CANTOR COLBURN, LLP 20 Church Street 22nd Floor Hartford, CT 06103			EXAMINER CHEN, WEN YING PATTY	
			ART UNIT 2871	PAPER NUMBER
			MAIL DATE 06/26/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/725,595

Applicant(s)

LYU, JAE-JIN

Examiner

WEN-YING PATTY CHEN

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 April 2008.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5,6,8-32 and 36-40 is/are pending in the application.
4a) Of the above claim(s) 8-32 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 5,6 and 36-40 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 03 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB08)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on Apr. 10, 2008 has been entered.

Response to Amendment

Applicant's Amendment filed on Apr. 10, 2008 has been entered. Claims 2-4 and 33-35 are cancelled and claims 36-40 are newly added per the Amendment filed. Therefore, claims 5, 6, 8-32 and 36-40 are now pending in the current application but claims 8-32 are withdrawn from consideration.

Claim Objections

Claim 6 is objected to because of the following informalities: Line 10 of claim 6 recited, "an inorganic alignment layer formed on the transparent layer", which is believed to contain typographical error, since "transparent layer" lacks antecedent basis. It is believed that the limitation should read "transparent electrode". Therefore, for purpose of examination, line 10 will be treated as though to recited, "an inorganic alignment layer formed "n the transparent electrode". Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 5 and 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abileah et al. (US 6169590) in view of Jones et al. (US 6124907).

With respect to claim 5 (Amended): Abileah discloses in Figure 18 a liquid crystal display apparatus comprising:

- a first transparent substrate (element 34; Column 22, lines 42-43);
- a second transparent substrate (element 40; Column 22, lines 42-43) facing the first substrate;
- a liquid crystal layer (element 38) interposed between the first and second transparent substrates;
- a color filter layer (elements 42, 44, 46) disposed on the second transparent substrate (element 40),

a retardation layer (element 62) disposed on the color filter layer;
a transparent electrode (element 64; Column 27, line 39) formed on the retardation layer;
and

an alignment layer (element 66) formed on the transparent electrode.

Abileah does not disclose that the retardation layer has a cholesteric liquid crystal material.

However, Jones teaches in Figures 1 and 9 of forming a retardation layer (element 17) on a color filter layer, wherein the retardation layer has a cholesteric liquid crystal material (Column 12, lines 36-52, wherein the retardation layer contains chiral dopant) and is coated on the color filter layer and fixed by an ultraviolet light (Column 8, lines 8-9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display apparatus as taught by Abileah wherein the retardation layer comprises a cholesteric liquid crystal material and fixed by an ultraviolet light as taught by Jones, since by forming a retardation layer with cholesteric liquid crystal material allows an improvement in the viewing angle of the display device.

As to claim 36 (New): Jones further discloses in Column 9 lines 62-65 that the cholesteric liquid crystal material has a function of a biaxial film.

As to claim 37 (New): Jones further discloses in Column 12 lines 39-52 that the retardation layer comprises reactive mesogen mixture (RMM).

As to claim 38 (New): The limitation of “wherein the retardation layer is coated via a micro gravure coating method” is recognized to be a product-by-process claim.

“[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., In re Gamero, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979). See MPEP§2113 [R-1]

The above-mentioned limitation presents no structural limitation to the claimed product.

Claims 6 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abileah et al. (US 6169590) in view of Kaganowicz (US 5011268).

With respect to claim 6 (Amended): The limitation of “the retardation layer being configured to be coated on the color filter layer via a micro gravure coating” is recognized to be a product-by-process claim.

“[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., *In re Garnero*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979). See MPEP§2113 [R-1]

The above-mentioned limitation presents no structural limitation to the claimed product.

Abileah discloses in Figure 18 a liquid crystal display apparatus comprising:

- a first transparent substrate (element 34; Column 22, lines 42-43);
 - a second transparent substrate (element 40; Column 22, lines 42-43) facing the first substrate;
 - a liquid crystal layer (element 38) interposed between the first and second transparent substrates;
 - a color filter layer (elements 42, 44, 46) disposed on the second transparent substrate (element 40),
 - a retardation layer (element 62) disposed on the color filter layer;
 - a transparent electrode (element 64; Column 27, line 39) formed on the retardation layer;
 - and
 - an alignment layer (element 66) formed on the transparent electrode.
- Abileah is silent on the material of the alignment layer.

However, Kaganowicz teaches in Column 3 lines 22-40 of forming alignment layers using inorganic materials.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display apparatus as taught by Abileah wherein the alignment layer is formed of an inorganic material as taught by Kaganowicz, since

Kaganowicz teaches that by forming alignment layers of inorganic materials provides good molecular alignment, optimum resistivity and good tilt angle (Column 3, lines 14-21).

As to claim 39 (New): Kaganowicz further discloses that the inorganic alignment layer comprises silicon oxide (see Claim 2).

Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abileah et al. (US 6169590) and Kaganowicz (US 5011268) in view of Jones et al. (US 6124907).

Abileah and Kaganowicz disclose all of the limitations set forth in claim 6, but both lack to disclose that the retardation layer comprises reactive mesogen mixture (RMM), polyvinylalcohol (PVA), polycarbonate (PC) or cycoolefin polymer (COP).

However, Jones teaches in Column 12 lines 39-52 of forming retardation layer with reactive mesogen mixture.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display apparatus as taught by Abileah and Kaganowicz wherein the retardation layer comprises reactive mesogen mixture as taught by Jones, since reactive mesogen mixture is known to be photo-patternable, thus by forming retardation layer of reactive mesogen mixture allows the retardation to be patterned as desired (Column 7 line 29 through Column 8 line 20).

Response to Arguments

Applicant's arguments with respect to all claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WEN-YING PATTY CHEN whose telephone number is (571)272-8444. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571)272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

WEN-YING PATTY CHEN
Examiner
Art Unit 2871

/wpc/
6/19/08

/Andrew Schechter/
Primary Examiner, Art Unit 2871